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AUTHOR Roitbert, Nurit
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ABSTRACT

This paper discusses the reorganization of libraries in order to adopt new techniques and to incorporate the electronic library, focusing on the Technion-Israel Institute of Technology. The first section addresses manpower and the electronic library, including processing electronic journals, justification for the traditional library organization with a flexible and dynamic solution for the areas that are affected by constant change, and new responsibilities of staff at the Technion related to the electronic library. The second section considers the library as a leader, including status related to electronic information management, the importance of encouraging new initiatives, and the role of the Technion library in making videotaped courses available on the campus network. The third section covers centralization versus decentralization, including cooperation among libraries at the institutional level as a tool to achieve centralization, cooperation among departmental libraries at the Technion, and the use of Internet technology for bibliographic services at the Technion. The fourth section discusses technical support in the library, including the trend toward more independence of libraries in maintaining their networked information services and communication issues, especially between the library and the campus computer center. The last section describes future possible changes in library management and manpower organization. (MES)

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The Influence of the Electronic Library on Library Management
A technological university library experience

Nurit Roitberg
Elyachar Central Library, Technion-Israel Institute of Technology
Haifa, Israel
E-mail: roitberg@tx.technion.ac.il

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Abstract

The electronic library is growing fast in parallel to the traditional library. The high rate of growth is dictated by factors outside the library. Library's administration is under a lot of pressure to achieve goals much faster than planned, to adopt new technologies, to compete with others in the groundplay of the information world and to be able to lead in this area. This process adds an enormous burden on library staff and budget.

The library should check and update its strategic plan and change priorities frequently. As a result, the workflow should be changed and librarians should adopt new and additional duties. This is a dynamic process that require constant re-examination.The organization of electronic databases and e-journals, the migrating to new integrated library systems, the link between the print and electronic collections, the new type of reader' help and guidance, the growing of web-based university-teaching materials are affecting library management today. The library is facing new realities and must deal with them.

The old hierarchy and departmental division is not always applicable. Special workgroups and special assignments can be the answer. Also, employees can become part of the new mission on the basis of their specific knowledge and enthusiasm. Vision, leadership and a new organizational culture which is based on proffessional achievements and pride are needed to motivate people to take

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part and to invest more and more in additional goals.

In the electronic library era, new duties can grow such that a new job or a new department is created. Sometimes a major administrative change in needed in library systems where there is more than one library in the institution.

Library management at present and in the coming years needs a different approach in which flexibility, team work and enthusiasm are the keywords.

Paper

The reorganization of the library in order to adopt new techniques and to incorporate the electronic library is sometimes called re-engineering. This term expresses the feeling of a revolutionary era, changes in attitudes, entrance to new technological areas and building a new library system, based on virtual collections. However, unlike the original definition of re-engineering, which means that the new system replaces the old one, the traditional library is not abandoned or neglected, but is continuing to develop side by side with the electronic library. The library continues to purchase and catalog books and to give services to readers who personally visit the library. The combination of both the traditional and the electronic services is called today the hybrid library.

Manpower and the electronic library

The new tasks are not equally divided according to the old scheme and the additional workload for developing and maintaining the electronic library does not always fit into the existing order. Some tasks are related to the traditional library departments and some are new. In general, the electronic library is adding many additional duties on the present team.

Licensing electronic journals is strongly connected to the serials department, but it is a labour intensive and time-consuming job. Linking the electronic journals to the library homepage is a new task that nobody did before. Readers services are given today not only personally, but also by electronic means. This includes technical support in addition to the bibliographic services. New databases and e-journal collections must be checked constantly by the librarians as to their contents, format and method of linking. This is a wearisome task. It is followed by preparing written explanations and messages to the readers regarding new services, and giving group instructions on how to use the electronic library. In fact, developing and maintaining the library homepage which becomes the heart of bibliographic work, requires a lot of effort in planning, writing texts, and technical work. Working in a state of continual change means dealing constantly with new missions, new technologies, new partners to compete with and constant pressure to proceed and not to be left behind. Changing library priorities and strategic planning is one thing, performing all duties with the same team becomes the problem.

Administratively many libraries are still organized according to the old system, which is based on traditional departments such as acquisitions, cataloging, serials, etc. Employees feel secure within this administrative framework since many of them have a tenure status and other privileges. Duties and hierarchy are usually well defined in this system.

It is difficult to change the old hierarchy and duties and it is not desirable to do

so unless it is necessary. There is a strong justification for the traditional library organization, but a flexible and dynamic solution is needed for the areas that are affected by the constant change. Here, what is suitable today may not be appropriate tomorrow. Libraries do not yet have enough experience to define and measure all new tasks related to electronic library duties. Some new duties may develop into a new department and some may vanish after a while when a special task is completed. Therefore, only a different approach will enable the library to cope with the new duties without dramatically changing the administrative manpower organization of the library. The solution should not be a part of the old hierarchy, but it can be an addition to it. The library can create a parallel scheme in which librarians should be treated on an individual basis rather than according to their place and duties in the traditional hierarchy. Special tasks can be given as personal assignments to people with qualifications, ability and enthusiasm to do more and to take part in the new and advanced developments. It appears that responsibility for a mission in the area of the electronic library is a reward in itself because of the professional interest, the esteem of the library's management and the personal pride of achievement.

The prerequisite to such an approach is an appropriate organizational surrounding with new values. The creation of the correct culture demands investing efforts in employees' education, learning new techniques and constant updating. Most libraries do not get enough additional manpower, if at all, to compete with new duties related to the electronic library. When they get additional manpower it is invested first of all in technical duties that require skilled engineers etc. Most of the work required for the transition into the electronic library areas is done by the existing library team. The computer or the PC with its basic software is an essential tool, and librarians should improve their ability to use it constantly. The combination of experienced librarians well trained in modern technology, with personal responsibility to individual or team missions is the key to success and progress.

The Technion-Israel Institute of Technology is a technological university and a research institution located in Haifa, Israel. It has a central library and twenty departmental libraries, operating as one bibliographic unit. The electronic library is being developed and maintained by the Central Library for the whole campus. At the Central Library senior librarians voluntarily took personal responsibilities that were not in their areas: The head of book cataloging department is linking e-journals to the library homepage, the head of book acquisitions department does preparation for licensing e-journals, The heads of reader services, cataloging and acquisitions serve as the library homepage editorial team, The information specialist classifies e-journals, the reference librarians take part in various tasks regarding the development of the electronic library. Even the secretary is involved in updating information related to electronic items.

It was not planned so, but developed as a result of a continuous process which began with raising problems, discussing them with the library senior staff and trying to find practical solutions with the present manpower. The discussions included topics such as: problems related to improving the homepage and the electronic services to the departmental libraries, cataloging e-journals, the linkage between the library catalog and the library homepage, technical problems related to the library integrated system, to local databases and more. Many issues were solved in a creative and efficient way; some are still not solved. Also, some mistakes were done and corrected as a part of this process. The most important outcome was the sense of partnership and shared responsibility of the senior team and the feelings of shared success and professional pride.

Librarians at all levels are encouraged to participate in courses that improve their computer capabilities. Such courses are organized for librarians, sometimes together with other Technion employees, in cooperation with the Technion manpower division. In-house lectures on special technical subjects are given from time to time to the librarians by the technical staff of the Central Library.

The library as a leader

Libraries' management already know that they must adjust themselves to a situation of constant change. The pace of development is influenced strongly by factors outside the library: many new databases and new e-journals are offered frequently in the market, sometimes in more than one interface and much research is required before reaching a decision regarding new products. There are long periods of preparation for the implementation of a new version or a new library integrated system and then it takes time to absorb it. Library hardware should be updated as a result of technology advancement, new web-based university teaching materials should be accessed and combined in the virtual library, and user education is required on a larger scale and in various forms.

Library directors are also under a lot of pressure to achieve goals much faster in order to compete with others in the playground of the information world. Electronic information management has become prestigious, and in order to lead in this area the library should take initiatives and enter into new projects if they are related to its services. The library became a specialist in networked information, mainly in giving diverse unified services to all the users of the campus network. However, today there is much more knowledge and professional ability in the libraries to control the faster pace of development and to direct it according to their needs. Many libraries have already proved their competence in dealing with new technologies and with the virtual or electronic library. Libraries can act today from a standpoint of power rather than be dictated to by others. Today, the status of the university library is higher at the university and in the eyes of the information vendors. As a result the library can influence much more on its development's pace and directions. Of course, such a status is acquired by investing much continuous work, thoughts and planning and by making mistakes and correcting them.

Many libraries have reached a position of leadership. Leadership means more chances to proceed towards future goals as the library sees it. The library should make all efforts to keep this position by using vision as an administrative tool. This means encouraging new initiatives and ideas brought up by the library staff, and trying to create the future, instead of being led by others.

These opportunities are available now as a result of the electronic library development, and on the basis of the university libraries achievements till now. Not only has librarianship changed itself into a modern profession on the cutting edge of technology, but libraries have used their traditional cooperation to create powerful consortia. Universities' management cannot ignore the impact of change brought by the libraries to the academic community. Libraries are now experts in networked information, and as a result they can influence on other related areas.

At the Technion, it was decided to change the technological approach towards video taped basic courses. The courses are available now on video-cassettes which can be watched via stand-alone television stations in the audio-visual library. It was decided to move to DVD technology and link the information to the campus network using a special server. The Central library was asked by the Technion management to take responsibility for marketing the audio-visual

collection in its new form. The filmed lectures will be available on the campus network via the library homepage.

The Central Library is also using its influence to convince the appropriate Technion authorities that a uniform set of rules is needed when putting teaching materials on the web. The practical experience gathered by watching the pattern of use at the library computer-cluster serves as a tool for identifying additional needs of students other than the traditional bibliographic requirements. The electronic library cannot be separated from a wide range of other aspects related to teaching.

The library should always be aware of future developments and be part of them. By ignoring them the library may lose the new developments to competitors within the institution.

Centralization versus decentralization

The old debate between centralization and decentralization is now definitely weighted in the favour of centralization. In the age of virtual information there is no meaning to the physical location of the information, but there are great advantages, financial and bibliographic to unifying and incorporating distributed systems.

Libraries need stronger power to succeed in their negotiations with the vendors of electronic information. Sometimes the vendors themselves prefer to sell e-information to larger bodies. The re-birth of consortia in its modern frame is a direct result of this process.

The problem of decentralization is usually an institutional problem. While libraries are ready to cooperate on a national or regional level, they find it much difficult to do so on an institutional level. Cooperation in the electronic area means much more than inter-library loan and coordination of acquisitions. It sometimes means loosing independence. Progress depends much more on centralization than on cooperation. However, cooperation is a positive tool to achieve centralization. In a distributed university library system, electronic databases and e-journals should be purchased only once and placed on the university network with access for all readers. In reality efficiency is not the only motive, prestige counts too and departmental librarians would not give it easily up. A major issue is who controls the library homepage and other centralized computerized bibliographic systems in a decentralized university library system. Voluntary cooperation among libraries in the campus can solve only part of the conflict. An official centralized management of the electronic library can ensure that the financial investments involved in developing the electronic library will be used efficiently to the benefit of all university users.

At the Technion, for example, there are 20 departmental libraries. There is a long tradition of cooperation among the libraries, and the technical services (acquisitions, budget control, cataloging, classification, inter-library loan) are centralized. Cooperation worked well for a long period. The Central Library took leadership in computerizing the traditional services of all the Technion libraries. The departmental librarians understood the benefits of the computerized system, added their local demands and as a result all the Technion libraries have one computerized catalog and one readers file. As readers services were based mainly on the paper editions, the departmental libraries enjoyed the prestige of giving an important service to their readers.

At the beginning of the nineties stand-alone databases on CD-Rom were

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introduced to some libraries. Networking was next stage. The Central Library took the initiative and leadership and put the major databases on the campus network.

Networked CD's were not the desired solution for the campus network. CD's can be accessed by PC's only via the campus Novell network. There were problems with other types of computers. In the mid-nineties when Internet technology was made available, the Central Library decided to use it as the backbone of its bibliographic services. The library homepage was created and databases were linked to it using an IP number for identification with no need for ID or PW. All Technion computers could reach the services via the campus network. When e-journals started to appear, the Central Library did not allow any private arrangement between a departmental library and the vendors. The Central Library made the licensing arrangements for the entire Technion and linked the journals to the central homepage. Links were made between the homepage and the central catalog. Attempts were made by departmental libraries to develop independent homepages. The Central Library encouraged them for local faculty purposes, but not as parallel systems. The departmental libraries' homepages are linked to the main library homepage which is a part of the Technion homepage and represents the complete electronic library.

In order to prevent decentralization of the electronic collections, and to ensure that the electronic library will serve all campus users, the Central Library has been officially appointed to manage the electronic library. Most e-journals and bibliographic databases are paid from the Central Library's budget. The Central Library represents the Technion in the Israeli University Libraries Consortium.

Technical support in the library.

The volume and level of computerization in modern university libraries together with the library's responsibility for services via the campus network, dictates a more independent approach to the area of technical support. Relying on outside technical assistance or on the university computer center services is partial solution. Although the situation is different in various institutions, the trend is towards more independence of libraries in maintaining their networked information services. In fact university libraries serve as the technical centers of the electronic library.

A university library today has a large number of workstations. At the Technion libraries there are 300 workstations and the number is growing. Most or all staff members are working with PC's and the readers' services are also based on them. Advanced libraries have created computer clusters for readers' use. Maintaining and upgrading such a large amount of equipment is demanding constant work. In addition, there are in the libraries servers and communication equipment. The servers located at the library are related to library information systems or sometimes to the integrated library system. At the Technion Central Library there are five servers for different purposes related to local databases, the library homepage and for backup. The library's computer which is used for "Aleph" integrated library system is located at the computer center because of historical reasons. In order to operate all the systems efficiently, the library should have its own technical staff: an engineer or a technician. The library staff needs an immediate address when faced with a technical problems, and library problems are first priority for the library engineer.

The communication issue is a most important one. Library services are based on the campus network, which is usually maintained and developed by the university computer center. The connection between the university library and

the university computer center is based first of all on network definitions and network activities. At the Technion the library proxy which is the gateway to remote databases and e-journals is maintained by the computer center. Continual coordination is necessary and should be done by a professional person from the library side.

Besides the equipment and communications mentioned above, the library maintains a large homepage, gives technical help to departmental libraries, assists network users, develops software solutions for problems not solved in the library integrated system and more.

In large decentralized library systems like that at the Technion, a continual dialog is needed between the Central Library technical staff and faculty engineers in regard to problems related to the departmental library equipment.

In the past, the library relied much more on the computer center services and one or two experienced librarians served as coordinators. Later when the level of computerization in libraries progresses, the lack of enough technical knowledge became a barrier for further development. The Internet opened new possibilities, staff members acquired more knowledge and techniques. In order to widen the library networked services and invest budget in it, the level of technical maintenance must be assured.

The need for an engineering department in the library is a result of the development of the electronic library. This need is much more defined than other new tasks resulting from the electronic library. Once the library hires its own engineer, a wider range of opportunities are opened for improving electronic services. The librarians can rely upon a higher level of technical solutions. As the development of library computerized services continues there is a demand to solve more technical problems. In larger library systems, one person is not enough and gradually more staff is hired to its engineering department.

Future possible changes

The changes in library management and manpower organization are highly affected by the development of the electronic library. It is difficult to predict the character and pace of change of the electronic library, but these factors will determine the future of the library organization.

As a result of the present achievements of the electronic library, the interlibrary and document delivery department already requires less manpower as more material is available via the network to the end-user. On the other hand, the serials department maintains two parallel systems, the print and the electronic. When electronic versions will totally replace the paper editions, a considerable workload will be reduced in the serials department, but online access to the back volumes is still a major unsolved problem.

The vision of a library with very few librarians does not seem realistic. The library will still need its professional staff, but they should be prepared to move from one field to the other, or to incorporate additional duties frequently. Higher qualifications and constant updating are essential for efficient work in the future library.

Electronic information is not less expensive than the printed information. To the contrary, larger investments are needed. Libraries realize the benefit of cooperation and the number of consortia is growing.

The electronic library is becoming more and more a part of the virtual campus, and is being integrated with virtual instruction.

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